Al-Mansoura University
Faculty of Engineering
Communications and Elect. Dept
Total Marks (40)

Electronic testing-4 (COM9414)
4th Year Students
Time 2 Hours
January 2014

Q1: (10 Marks).

(a)-Explain with drawing the following items: (1)-The **PCM** modulation technique. (2)- Low-pass-filter and its cutoff frequency. (3)- Sampler, quantizer, and encoder. (4)- Sampling theory and the optimal sampling frequency. **(4 Marks).**

(b)-For the circuit shown in **Figure (1)** what are the objective of the following components: **U1:A, U1:B, R_1, R_2, R_3, R_4, R_5, R_6, C_1, and C_2.** **(3 Marks).**

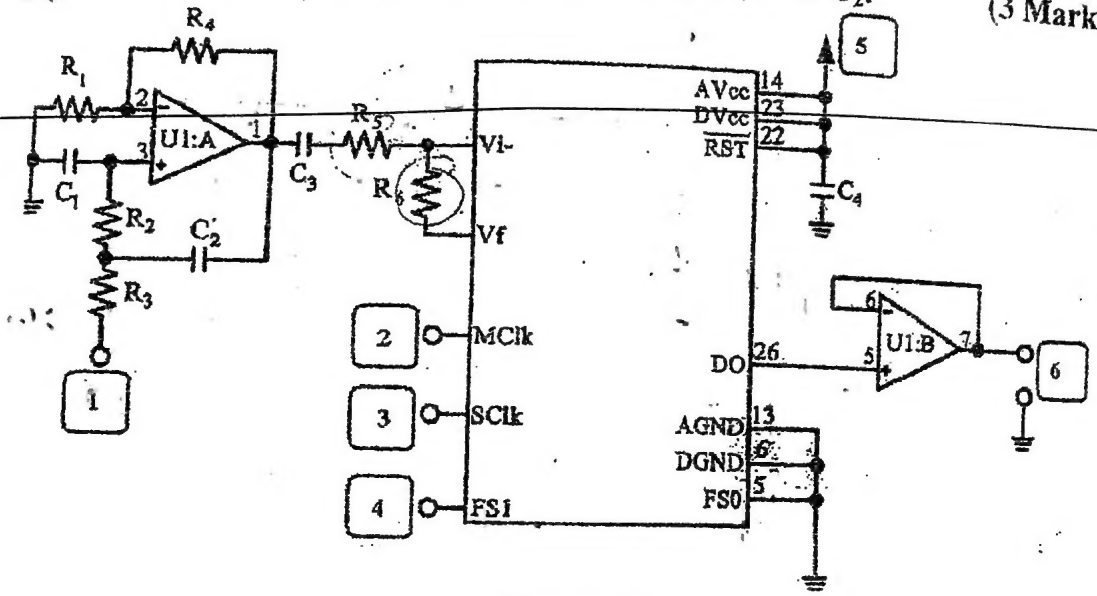

Figure (1)

(c)- For the circuit shown in **Figure (1)**, write a name and explain the function of each numbered point. **(3 Marks).**

Q2: (10 Marks).

(a)- Explain with drawing the following items:
(1)-The block diagram of the **PCM** demodulation technique. (2)- The basic block diagram of **ASK** modulation technique. (3)- The basic circuit diagram of the **ASK** modulator by using **2206 IC.** **(6 Marks).**

(b)-For the circuit shown on **Figure (2)**, name this circuit and explain its function. For each component shown in **Figure (2)**, explain its function and write the name of each numbered point. **(4 Marks).**

Q3: 10 Marks.

(a)- Explain with drawing the following items:
(1)-The block diagram of the asynchronous **ASK** demodulator.
(2)-The structure diagram of the **FSK** modulator.
(3)-The circuit diagram of **FSK** modulator by using **2206 IC.** Write the equations of f_1, and f_2. **(6 Marks).**

(b)-For the circuit shown on **Figure (3)**, name this circuit and explain its function. For each component shown in **Figure (3)**, explain its function and write the name of each numbered point. **(4 Marks).**

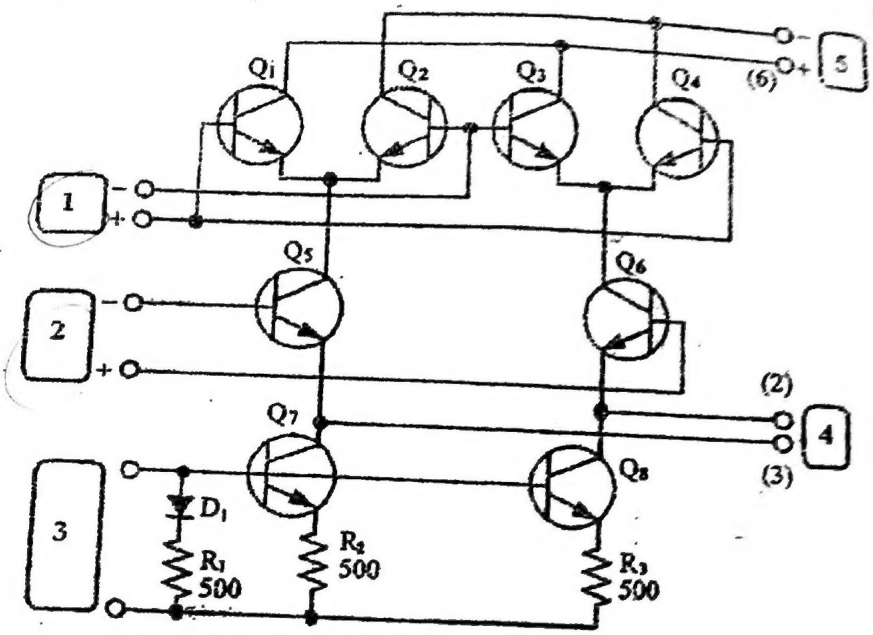

Figure (2)

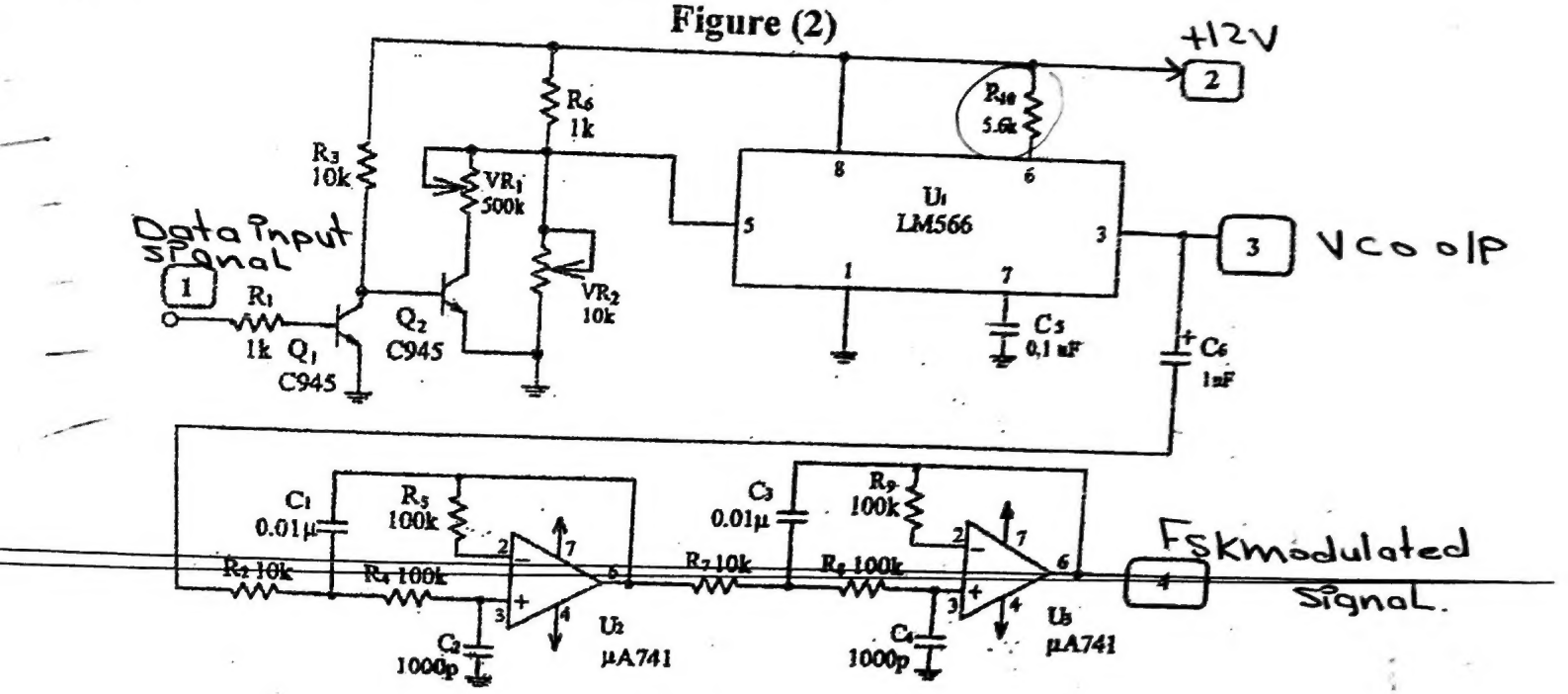

Figure (3)

Q4: (10 Marks)

Explain with drawing the following items:

(1)- The block diagram of the synchronous **FSK** demodulator circuit. **(2 Marks).**

(2)- The block diagram of the phase locked loop circuit. **(2 Marks).**

(3)- The basic structure diagram of the **PSK** modulator technique. **(2 Marks).**

(4)- A simple circuit diagram of **PSK** modulator. **(2 Marks).**

(5)- The block diagram of the **PSK** demodulator. **(2 Marks).**

With My Best Wishes

Dr. Muhammad Morsy